Image

TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.: PB0092

In Re Application Of: **T. Armstrong, et al.**

Serial No.	Filing Date	Examiner	Group Art Unit
09/746,361	December 22, 2000	Amanda H. Merlino	2877

Invention: **A Sample Chamber for Use in Analytical Instrumentation**

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **October 17, 2003.**

The fee for filing this Appeal Brief is: **$330.00**

☐ A check in the amount of the fee is enclosed.

☒ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **502-590**

Signature

Dated: **December 16, 2003**

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I certify that this document and fee is being deposited on **December 16, 2003** with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature of Person Mailing Correspondence

Melissa Leck

Typed or Printed Name of Person Mailing Correspondence

cc:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Serial number:	09/746,361	Examiner:	A.H. Merlino
Filing Date:	December 22, 2000	Docket No.:	PB0092
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APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

December 16, 2003

Sir:

Appellants submit this Appeal Brief in triplicate, appealing from the June 19, 2003, rejection of the Primary Examiner, finally rejecting all pending claims in the captioned application. The Notice of Appeal was filed on October 17, 2003, which contained authorization to charge the "Appeal Fee" to Appellants' Deposit Account.

REAL PARTY IN INTEREST

Amersham Biosciences SV Corp, formerly known as Molecular Dynamics, Inc., owner of the captioned application, is the real party in interest to this appeal.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences related to the instant appeal.

STATUS OF CLAIMS

Claims 1–38 are pending in the captioned application and are currently under examination; claims 22-38 have been withdrawn from consideration. Claims 1–21 are appealed and are reproduced in Appendix A, attached hereto.

STATUS OF AMENDMENTS

Appellants requested cancellation of claims 22-38 in the reply to Examiner's final office action rejection of all claims. Amendments to the specification were also requested to correct grammatical errors, in connection with said reply. It is Appellants' believe that the above amendments have been entered, since the Examiner did not refuse to enter them in the Advisory Action. Nonetheless, the amendments to the specification are reproduced in Appendix B, attached hereto.

SUMMARY OF INVENTION

The instant invention related to a tube or chamber optimized for applications as part of an optical system. This tube or chamber includes an optically transmissive elongate tubular body having an elongate tubular body wall including an interior surface and an exterior surface. The interior surface of the tubular body wall defines an elongate bore for containment or transport of a sample material to be analyzed. The body wall further includes a first portion, through which incident radiation passes, having a non-uniform thickness about the sample passageway so as to optimize optical coupling therethrough.

Claim 1 directs to an optical analysis chamber, comprising: an optically transmissive elongate tubular body having an elongate tubular body wall including an interior surface and an exterior surface, said interior surface of said body wall defining an elongate sample passageway for containing a sample material; wherein said body wall further includes a first optically transmissive window, said window having a substantially convex exterior surface portion, through which optical radiation passes, said window having a non-uniform thickness about the sample passageway selected so as to optimize optical coupling therewith for analyzing said sample material. Claims 2-21 directly or indirectly depend on claim 1. Support for the claimed invention can be found through out the specification (e.g. Figures 4, 5, 9, 10; page 3, lines 25-31, page 12, lines 9-11, page 16, lines 12-13 and 25-31, amongst others).

ISSUES

Whether claims 1-21 are properly rejected under 35 U.S. C. 102 (e) as being anticipated by Gilby (US 6,239,871).

GROUPING OF CLAIMS

All of the rejected claims in the rejection appealed hereunder stand or fall together.

ARGUMENT

Claims 1-22 are not properly rejected under 35 U.S. C. 102 (e) as being anticipated by Gilby (US 6,239,871).

In a final office action dated June 19, 2003, the Examiner has rejected claims 1–21 under 35 U.S.C. § 102(e) as being clearly anticipated by Gilby (6,239,871). Specifically, the Examiner states, "Gilby teaches of an optical analysis chamber comprising an optically transmissive elongated tubular body (112) having an interior and exterior surface, said body wall having a window (100) having a substantially convex exterior surface wherein said window has a non uniform thickness (figure 2A) and wherein the longitudinal axis of the sample passageway is offset from the tubular body". The Examiner maintained the rejection in an Advisory Action dated October 29, 2003, stating, "Applicant's arguments are not persuasive. Examiner believes that the prior art reads on the claims."

In response, Appellants disagree and submit that the Examiner was mischaracterizing the teachings of Gilby. Appellants respectfully submit that Gilby clearly did not include each and every limitation of the claims of the present invention. Furthermore, Gilby failed to disclose, teach, or suggest the present invention. Gilby discloses an optical scheme including a hyper-hemisphere and a hemisphere, both with a substantially planar surface. The substantially planar surface of the hyper-hemisphere is optimally located so that a capillary or cell can be positioned at an internal aplanatic radius, resulting in an aplanatic focus at the capillary or cell such that the spherical aberration and coma are zero (Abstract and Figure 2A). Thus, unlike the current

invention which the interior of the optical chamber contacts with the analyte sample directly, a capillary or cell containing the analytes has to be placed in the Gilby optical scheme for analyte separation.

Further, as it is seen in Figure 2A of Gilby, the substantially planar surfaces of the hyper-hemisphere and the hemisphere, 102 and 110 respectively, are mated such that the grooves 104 and 112 form a channel 114. A capillary or cell (for analyte separation) is then inserted into this channel, and the air space between the channel and capillary is filled (Col. 4, ll. 24-51). Contrary to the current invention, the separation chamber (cell or capillary) in the optical apparatus of Gilby is clearly separated from the other components (Col. 4, ll.24-51; Claim1). In view of these comments, Appellants respectfully submit that the present invention is patentably distinct from Gilby. Reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing, Appellants respectfully submit that the Examiner's rejection cannot be sustained and should be withdrawn.

CONCLUSION

In view of the foregoing, Appellants respectfully assert that the Examiner's rejection cannot be sustained and respectfully requests the reversal of the rejection.

Respectfully submitted,

Yonggang Ji, 53,073
Agent for Appellants

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Signature: _____

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APPENDIX A

Rejected Claims

Claim 1 (previously presented): An optical analysis chamber, comprising:

An optically transmissive elongate tubular body having an elongate tubular body wall including an interior surface and an exterior surface, said interior surface of said body wall defining an elongate sample passageway for containing a sample material;

Wherein said body wall further includes a first optically transmissive window, said window having a substantially convex exterior surface portion, through which optical radiation passes, said window having a non-uniform thickness about the sample passageway selected so as to optimize optical coupling therewith for analyzing said sample material.

Claim 2 (original): The optical analysis chamber of claim 1, wherein said first window further comprises a substantially curved interior surface portion.

Claim 3 (original): The optical analysis chamber of claim 2, wherein said tubular body is an electrophoresis capillary.

Claim 4 (original): The optical analysis chamber of claim 2, wherein said exterior surface of said first window defines an optical interrogation beam transmission surface having a substantially semi-cylindrical shape.

Claim 5 (original): The optical analysis chamber of claim 2, wherein the longitudinal axis of said sample passageway is offset from the longitudinal axis of said tubular body.

Claim 6 (original): The optical analysis chamber of claim 2, wherein said exterior surface of said window defines an optical interrogation beam transmission surface having a substantially acylindrical shape.

Claim 7 (original): The optical analysis chamber of claim 2, wherein incident optical radiation passing through said window is directed through said sample passageway and is brought substantially to focus at a location near said exterior surface of said tubular body beyond said sample passageway.

Claim 8 (original): The optical analysis chamber of claim 2, wherein incident optical radiation passing through said window is directed through said sample passageway and is brought substantially to focus at a location near said interior surface of said tubular body beyond the center of said passageway.

Claim 9 (original): The optical analysis chamber of claim 2, wherein incident optical radiation passing though said window is directed through said sample passageway and is brought substantially to focus at a location within said sample passageway.

Claim 10 (original): The optical analysis chamber of claim 2, wherein incident optical radiation passing through said window is directed through said sample passageway and is

brought substantially to focus at a location near said interior surface of said tubular body before the center of said passageway.

Claim 11 (original): The optical analysis chamber of claim 2, wherein incident optical radiation passing though said window is directed to substantially focus about the center of said passageway.

Claim 12 (original): The optical analysis chamber of claim 2, wherein a portion of said exterior surface includes a reflective coating so as to redirect optical radiation towards said sample passageway.

Claim 13 (original): The optical analysis chamber of claim 2, wherein a portion of said exterior surface of said tubular body is formed to be substantially curved.

Claim 14 (original): The optical analysis chamber of claim 2, wherein said exterior surface of said tubular body further includes at least one facet for cooperatively aligning adjacent said optical analysis chambers within an array of said optical analysis chambers.

Claim 15 (original): The optical analysis chamber of claim 2, wherein said exterior surface of said tubular body further includes a pair of opposed planar facets for cooperatively aligning adjacent said optical analysis chambers within an array of said optical analysis chambers.

Claim 16 (original): The optical analysis chamber of claim 1, wherein said body wall further includes a portion functioning as an second window selected to optimize optical coupling of information-carrying radiation out of said passageway

Claim 17 (original): The optical analysis chamber of claim 16, wherein said first window is distinct from said second window.

Claim 18 (original): The optical analysis chamber of claim 16, wherein said first window is substantially orthogonally oriented with said second window.

Claim 19 (original): The optical analysis chamber of claim 2, wherein the cross-section of said tubular body is bilaterally symmetric.

Claim 20 (original): The optical analysis chamber of claim 2, wherein the cross-section of the external surface of said tubular body has no axis of symmetry.

Claim 21 (original): The optical analysis chamber of claim 17, wherein said tubular body wall further comprises a third window selected to optimally couple radiation therethrough.

APPENDIX B

Amendments to the Specification:

Please replace the paragraph on page 4, lines 16-31, with the following amended paragraph:

Generally, the technology of capillary manufacture does not dictate that the devices be strictly cylindrical, or that they possess exact circular symmetry. In most instruments employing capillary-type sample containment, signal processing efficiency is related in some way to the flux of the interrogation beam radiation that may be delivered to the sample chamber, and to the amount of signal energy that can be collected and delivered to a detector. The present invention teaches the benefits,[[.]] in terms of interrogation efficiency and signal collection efficiency, of making any or all of several modifications to the standard capillary configuration. Frequently, interrogation radiation may be delivered to the capillary in collimated fashion, but signal energy will be radiated into a large angular swath. Naturally, modifications to the capillary geometry that affect interrogation efficiency may also alter the efficiency of collection of signal radiation, and so it is necessary to consider these tradeoffs in the process of altering the symmetric cylindrical geometry of a traditional capillary. The choice of capillary design parameters may, in fact, be driven by various instrumental considerations, such as the scanning mechanism, number of capillaries, detector characteristics, choice of interrogation light source, properties of the analyte, data processing algorithms, and so on.

Please replace the paragraph on page 6, lines 19-24, with the following amended paragraph:

As well as improving the coupling efficiency of interrogation energy into the bore of the capillary, the invention provides for enhanced coupling of signal energy out of the bore and into ~~to~~ the signal collection optical train. The careful design and construction of the window that couples the energy out of the bore can make more signal energy available for detection, and the proper use of reflectors can deliver energy to the detection optical train that would ordinarily be lost from conventional capillaries.

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